

Claims 1-9 are pending in this application. Claims 1 and 9 are independent claims, and Claims 2-8 are ultimately dependent from Claim 1.

Claims rejected under 35 U.S.C. § 112 ¶ 1

Claims 1-9 were rejected under 35 U.S.C. § 112 ¶ 1 as containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was file, had possession of the claimed invention. Specifically, the Office Action states that the construction of the shown ring 71 and the curved stop groove 75 are unclear. Claims 1-9 are believed to contain only subject matter described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was file, had possession of the claimed invention.

"The carriage assembly 15, as shown in Figures 5, 6 and 7, includes a receiving element 40, a carriage shaft 41, a carriage handle 42, a means for coupling 43, that couples the carriage handle 42 to the carriage shaft 41, and a means for limiting 44, that limits the stroke of the carriage handle 42." page 7, lines 4-9. "the means for limiting 44 assures consistent folds." page 13, lines 14-15. "The means for limiting 44, in the illustrated embodiment, includes the stop rod 76 and the stop groove 75 in the ring 71. Other suitable means for limiting 44 may include, by way of example and not as a limitation, stop pins that directly engage the lever arm 65 at opposite ends of the desired stroke." page 9, line 32 - page 10, line 6.

"A cylindrical ring 71 fits around the cup 61, between the right carriage side plate 52 and the lever arm 65, and rotates freely relative to the cup 61. The ring 71 has a right face 72 and a spaced left face 73, with the right face 72 being rigidly attached to the lever arm 65. A curved stop groove 75 of a selected length extends into the left face 73. A stop rod 76 extends through the stop rod apertures 55 of the right and left carriage side plates 52 and 53, and rightwardly from the right carriage side plate 52 into the stop groove 75, limiting rotation of the carriage handle 42 in the clockwise and counter-clockwise directions." page 9, lines 11-21, as amended. (underlining added for emphasis)

The stop groove 75 is in the left face 73 of the ring 71 as is clearly shown and marked in Figure 6, and the stop rod 76 is clearly shown extending through the right carriage side plate 52 and into the stop groove 75 in Figure 6. In Figure 7 the stop rod 76 is clearly indicated as extending beyond the right carriage side plate 52. The primary purpose for providing Figure 6 was to show the stop groove 75 and the stop rod 76 extending into the stop groove 75. The Office Action provides no information as to what is unclear about the stop groove 75 or the stop rod 76.

The description of the ring 71 shown is amended to remove the modifier "hollow". Applicant believes that "hollow" is redundant since a ring is a generally round shape with a hole or cavity through the middle, and "hollow" is generally defined as having a space or cavity inside or not solid. The applicant

submits that the redundancy may have confused the Examiner and the Examiner may have introduce limitations into the description that are unwarranted, such as "thin shelled" or "thin" for the ring 71. The ring 71 as shown in Figures 1, 3, 5, 6 and 7 has the spaced right and left faces 72 and 73 that each extend from the center hole to the outer circumference of the ring 71.

The stop groove 75 extends into the left face 73. The stop groove is 75 curved. The curve of the stop groove 75, as clearly shown in Figure 6 and as would be obvious to one skilled in the art, follows an arc of a circle centered at the center of the ring 71. The groove 75 has a selected length which determines the angular extent of the arc. The stop rod 76 extends through the right carriage side plate 52 and into the stop groove 75, as described and as shown in Figure 6. The stop rod 76 is stationary and in the stop groove 75. The ring 71 can only rotate in one direction until one end of the groove 75 contacts the stop rod 76 and can only rotate in the opposite direction until the opposite end of the stop groove 75 contacts the stop rod 76.

The means for limiting 44 shown and described, limits the rotation of the carriage handle 42 to a selected angular arc determined by the selected length of the stop groove 75. The distance that the carriage assembly 15 advances is the same for each pull on the carriage handle 42, thereby providing consistent folds. Applicant stated in the written description of this application that other means for limiting can be

used. Such means for limiting rotation are used in many common applications such as throttle plates, lawn sprinklers, potentiometers, slot machines, drill presses and rotary latches. Applicant submits that the means for limiting 44 and more particularly, the shown stop groove 75 and stop rod 76 would be clear from the written description and drawings to one skilled in the art.

In relation to Claim 1, briefly stated, there is claimed apparatus for crimping/bending a tube including a frame, a toggle assembly mounted on the frame and a carriage assembly having a receiving element slidably mounted on the frame. The frame has a female die. The toggle assembly has male dies that, in cooperation with the female die, crimp the tube. The carriage assembly has a carriage shaft carried on the receiving element that engaging the frame to move the carriage assembly relative to the frame. A carriage handle is rotably mounted on the carriage shaft. The carriage assembly has a means for coupling the carriage handle to the carriage shaft with the means for coupling having a first configuration and a second configuration. In the first configuration the carriage handle engages and turns the carriage shaft when turned in a first direction and rotates freely relative to the carriage shaft when turned in the opposite second direction. In the second configuration the carriage handle rotates freely relative to the carriage shaft in both directions.

Claim 1 does not claim a "means for limiting" or any of the associated structure. The statement in

the Office Action that "the claimed "first configuration" and "second configuration" are based upon insufficient disclosure." does not follow from the assertion in the Office Action that the stop groove and rod 75 and 76 are not clear and the statement is error. In the first configuration, the carriage handle 42 is coupled to the cup 61 and thereby the cam clutch 60, and in the second configuration, the carriage handle 42 is decoupled from the cup 61 and thereby the cam clutch 60. The first and second configurations do not require the means for limiting rotation, and applicant requests that the rejection of Claim 1 under 35 U.S.C. § 112 ¶ 1 be withdrawn.

Claim 2 is dependent from Claim 1 and further claims that the means for coupling includes a cam clutch, mounted on the carriage shaft. Claim 3 is dependent from Claim 2 and further claims that the means for coupling includes a plunger slidably mounted on the carriage handle with the plunger engaging the cam clutch in a first position and slidably moving to a second position and disengaging the cam clutch in the second position. Neither Claim 2 or Claim 3 claims a "means for limiting" or any of the associated structure. For the same reasons set forth for Claim 1 applicant requests that the rejections of Claims 2 and 3 under 35 U.S.C. § 112 ¶ 1 be withdrawn.

Claim 4 is dependent from Claim 1 and further claims that the carriage assembly includes a means for limiting the rotation of the carriage handle. Claim 5 is dependent from Claim 4 and further claims that the means for limiting includes a ring attached to the

carriage handle and having a stop groove, and a stop rod carried on the receiving element and extending into the stop groove, so that the stop rod limits rotation of the carriage handle at opposite ends of the groove. For the reasons set forth for above applicant submits that the means for limiting, and the stop ring and groove are clearly disclosed, and requests that the rejections of Claims 4 and 5 under 35 U.S.C. § 112 ¶ 1 be withdrawn.

Claim 6 is dependent from Claim 1 and further claims that the frame includes a toothed rack and the carriage shaft includes a toothed carriage pinion that engages the rack so that when the carriage shaft rotates the carriage assembly moves relative to the frame. Claim 7 is dependent from Claim 1 and further claims that the female die includes an annular groove, the male dies include a top, right and left male die, the top male die overlaps the right male die and the left male die, and the top male die has a working tip that tapers towards the right and left male dies and the right and left male dies each have a working tip that tapers toward the top male die, so that the male dies self center in the annular groove. Claim 8 is dependent from Claim 1 and further claims that the receiving element includes a plurality of tube receiving grooves sized and shaped to receive a plurality of tube sizes and orientations. None of Claims 6, 7 or 8 claim a "means for limiting" or any of the associated structure. For the same reasons set forth for Claim 1 applicant requests that the rejections of Claims 6, 7 and 8 under 35 U.S.C. § 112 ¶ 1 be withdrawn.

Claim 9 claims apparatus for crimping/bending a tube including a frame, a toggle assembly mounted on the frame, and a carriage assembly having a receiving element slidably mounted on the frame. The frame has a toothed rack, and a female die mounted on an end of the toothed rack. The female die has having an annular groove. The toggle assembly has top, left and right male dies that, in cooperation with the female die, crimp the tube. The top male die overlaps the right and left male dies. The top male die has a working tip that tapers towards the right and left male dies. The right and left male dies each have a working tip that tapers toward the top male die, whereby the working tips of the top, right and left male dies form a wedge that self-centers the working tips in the annular groove of said female die. The carriage assembly has a carriage shaft carried on the receiving element with a pinion that engages the rack to move the carriage assembly relative to the frame. The carriage assembly has a carriage handle rotably mounted on the carriage shaft, a cam clutch mounted on the carriage shaft that engages and turns the carriage shaft when turned in a first direction and rotates freely relative to the carriage shaft when turned in a second direction. The carriage assembly has a plunger slidably mounted on the carriage handle that engages the cam clutch in a first position and slidably moves to a second position and disengages the cam clutch in said second position. The carriage assembly includes a ring attached to the carriage handle and having a stop groove. The carriage assembly has a stop rod, carried on the receiving element, that extends into the stop groove and limits rotation of the

carriage handle at opposite ends of the groove. The receiving element has a plurality of tube receiving grooves sized and shaped to receive a plurality of tube sizes and orientations. Claim 9 does not claim a "first configuration" and a "second configuration". As explained above, the stop rod and stop groove are clearly disclosed in the specification and drawings. Applicant requests that the rejection of Claim 9 under 35 U.S.C. § 112 ¶ 1 be withdrawn.

Conclusion

Reconsideration and allowance of Claims 1-9 is respectfully requested in view of the foregoing remarks. Should any issues remain that would preclude prompt allowance of this application, it is requested that the Examiner contact the undersigned attorney by telephone.

Respectfully submitted,



Ancel W. Lewis, Jr.
Attorney for Applicant
425 W. Mulberry, Suite 101
Fort Collins, Colorado 80521
(970) 482-2841